

4.5m Transportable Earth Station Antenna



Product feature

- The antenna system can be applied to GEO satellite tracking station, antenna control system offers full AC servo performance with adaptive step tracking or monopulse auto tracking for unparalleled tracking performance .
- The antenna system design consists of a spun carbon fiber reflector, a removable sub-reflector, heavy duty elevation over azimuth Positioner, and an optional heavy duty Trailer for transport.
- Carbon fiber reflector has a light weight (It is 30-50% lower than that for the same size of aluminum antenna) and strong stiffness and the servo driver has a small Moment of Inertia. The antenna has a high tracking accuracy and it fully meets Ka satellite tracking requirements. Carbon fiber reflector adopts high accuracy, single petal accuracy: $R.M.S \leq 0.13\text{mm}$, the assembly accuracy can reach $0.25\text{mm}(R.M.S)$.
- Carbon fiber reflector has good environment features and the temperature's influence on the $R.M.S \leq 0.01\text{mm}$. Therefore, the reflector does not need to install air conditioning system for constant temperature control of reflector.
- The electrical performance and versatility allows the ability to configure the antenna with a variety of transmit and receive feed assemblies. This versatility provides the ability to configure the antenna with multiple linearly or circularly polarized C-band, X-band, X-band Low Passive Intermodulation (PIM), Ku-band,, and Ka-band feed systems. Each feed system has been designed to be easily removable for transport.
- The products meet the standard of FCC,ITU and Eutelsat regulations.
- The products can be used at such industries as Broadcast & Media, Military Communications, Emergency & Public safety, Oil and Gas etc.



Electrical Specification

4.5Transportable ESA electrical parameters (DA4500P-A01)	With C-Band 2 port circular polarized feed		With C-Band 2 port linear polarized feed		With X-Band 2 port circular polarized feed		With Ku-Band 2 port linear polarized feed		With Ka-Band 2 port circular polarized feed		With Ka-Band 2 port linear polarized feed	
	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx
Frequency (GHz)	3.625	5.85	3.625	5.85	7.25	7.9	10.7	13.75	17.7	27.5	17.7	27.5
	4.2	6.425	4.2	6.425	7.75	8.4	12.75	14.5	21.2	31	21.2	31
Polarization	Tx-RHCP or LHCP configurable Rx-Orthogonal to Tx		Linear H/V Tx orthogonal to Rx		Tx-RHCP or LHCP configurable Rx-Orthogonal to Rx		Linear H/V Tx orthogonal to Rx		Tx-RHCP or LHCP configurable Rx-Orthogonal to Rx		Tx-RHCP or LHCP configurable Rx-Orthogonal to Rx	
Antenna gain at mid-band ±0.2db (X band ±0.5db)	43.3	47.2	43.3	47.2	49	49.7	52.9	54.6	57.3	61	57.3	61
Antenna Noise Temperature (clear sky)												
20° Elevation (k)	33		33		52		53		108		108	
40° Elevation (k)	34		34		53		41		103		103	
Side lobe performance	Meets ITU-R S.580 and S.465											
Cross polarization (Axis)	20.7dB	27.3dB	30dB	30dB	21.3dB	21.3dB	35dB	35dB	27.3dB	30.7dB	27.3dB	30.7dB
Compliance Port-to-port isolation												
Rx/Tx (Rx frequency-Rx band isolation)	20 dB		35 dB		18 dB		35 dB		20 dB		20 dB	
Tx/Rx (Tx frequency-Tx band isolation)	85dB		85dB		85dB		85dB		85 dB		85 dB	
VSWR	1.5:1	1.4:1	1.5:1	1.4:1	1.5:1	1.4:1	1.35:1	1.35:1	1.5:1	1.4:1	1.5:1	1.4:1
Axial ratio	2dB	2dB			1.5dB	1.5dB			2dB	2dB		
Feed insertion loss	0.5dB	0.5dB	0.3dB	0.3dB	0.2dB	0.2dB	0.4dB	0.3dB	0.5dB	0.5dB	0.45dB	0.45dB
Output waveguide flange interface	CPR-229G	CPR-137G	CPR-229G	CPR-137G	CPR-112G	CPR-112G	WR-75	WR-75	WR-42	WR-28	WR-42	WR-28

Mechanical Specification

Environmental Requirements

Mounting	Elevation over azimuth	Relative humidity	5 - 95%
Reflector equivalent diameter	4.5 m	Operational temperature	-25°C - +55°C (Optional -40°C - +60°C)
Configuration	Ring Focus	Storage temperature	-40°C - +60°C(Optional -50°C - +70°C)
Reflector configuration	Segmented(3 Piece)	Operational wind loading	30mph (48 km/h) Gusting to 45 mph (72 km/h)
Antenna adjustment	Elevation: 0° to 90° Azimuth: ±150° Polarization:±95°	Wind loading survival	Go to stow at 80mph (129 km/h)
Manual drive	Hand crank on Az and El, and Pol Axis		
Antenna weight	<1900Kg		